

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,766,230 B1
DATED : July 20, 2004
INVENTOR(S) : Rizzoni et al.

Page 1 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 3.

Line 53, please delete "testing" and insert -- testing, --.

Column 4.

Lines 14-18, please delete " $u_{0i}, i = 1..m$ are the input vectors
 $\Delta u_i, i = 1..m$ are the input fault vectors
 $\theta_{0i}, i = 1..m$ are the nominal parameter vectors
 $\Delta \theta_i, i = 1..m$ are the parameter fault vectors
 $x_i, i = 1..m$ are the state vectors" and insert

-- $u_{0i}, i = 1..m$ are the input vectors
 $\Delta u_i, i = 1..m$ are the input fault vectors
 $\theta_{0i}, i = 1..m$ are the nominal parameter vectors
 $\Delta \theta_i, i = 1..m$ are the parameter fault vectors
 $x_i, i = 1..m$ are the state vectors --

Lines 24-29, please delete

$$\begin{aligned} & \left. \begin{aligned} \dot{x}_i &= f_i(x_i, u_i, \theta_i) \\ y &= h_i(x_i, u_i, \theta_i) + \Delta y \end{aligned} \right. , x_i \in \Gamma_i \quad (1) \\ & \vdots \quad \vdots \\ & \left. \begin{aligned} \dot{x}_m &= f_m(x_m, u_m, \theta_m) \\ y &= h_m(x_m, u_m, \theta_m) + \Delta y \end{aligned} \right. , x_m \in \Gamma_m \end{aligned}$$

and insert

$$\begin{aligned} & \left. \begin{aligned} \dot{x}_1 &= f_1(x_1, u_1, \theta_1) \\ y &= h_1(x_1, u_1, \theta_1) + \Delta y \end{aligned} \right. , x_1 \in \Gamma_1 \quad (1) \\ & \vdots \quad \vdots \\ & \left. \begin{aligned} \dot{x}_m &= f_m(x_m, u_m, \theta_m) \\ y &= h_m(x_m, u_m, \theta_m) + \Delta y \end{aligned} \right. , x_m \in \Gamma_m \\ & \quad \quad \quad \dots \end{aligned}$$

Line 31, please delete " $u_{0i} = u_{0i} + \Delta u_i, \theta_i = \theta_{0i} + \Delta \theta_i, i = 1..m$ " and insert
 $-- u_{0i} = u_{0i} + \Delta u_i, \theta_i = \theta_{0i} + \Delta \theta_i, i = 1..m --$.

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Column 4 (cont'd).
Lines 37-44, please delete

$$\begin{aligned} & \left. \begin{aligned} \dot{x}_i &= g_i(\dot{x}_i, u_i, \dot{\theta}_i, y) \\ \dot{y}_i &= h_i(\dot{x}_i, u_i, \dot{\theta}_i) \end{aligned} \right. , \dot{x}_i \in \Gamma_i \\ & \vdots \quad \vdots \\ & \left. \begin{aligned} \dot{x}_m &= g_m(x_m, u_m, \dot{\theta}_m, y) \\ \dot{y}_m &= h_m(\dot{x}_m, u_m, \dot{\theta}_m) \end{aligned} \right. , \dot{x}_m \in \Gamma_m \end{aligned} \quad (2) "$$

and insert

$$\begin{aligned} & \left. \begin{aligned} \dot{\hat{x}}_1 &= g_1(\hat{x}_1, u_1, \dot{\hat{\theta}}_1, y) \\ \dot{\hat{y}}_1 &= h_1(\hat{x}_1, u_1, \dot{\hat{\theta}}_1) \end{aligned} \right. , \hat{x}_1 \in \Gamma_1 \\ & \vdots \quad \vdots \\ & \left. \begin{aligned} \dot{\hat{x}}_m &= g_m(x_m, u_m, \dot{\hat{\theta}}_m, y) \\ \dot{\hat{y}}_m &= h_m(\hat{x}_m, u_m, \dot{\hat{\theta}}_m) \end{aligned} \right. , \hat{x}_m \in \Gamma_m \end{aligned} \quad (2)$$

Line 48, please delete " $\hat{x}_i \rightarrow x_i$ for $i \rightarrow \infty$, $i = 1 \dots n$ " (3) "

and insert $\hat{x}_i \rightarrow x_i$ for $i \rightarrow \infty$, $i = 1 \dots n$ (3) ..

Column 5.

Line 41, please delete " $a_{lat} \leq 0.2g$ " and insert -- $a_{lat} \leq 0.2g$ --.

Lines 45-50, please delete

$$\begin{aligned} & \left. \begin{aligned} \dot{v}_x &= \frac{F_x}{M} + v_y \dot{\psi} \\ \dot{v}_y &= -\frac{2}{M} (C_f + C_r) \frac{v_y}{v_x} - \frac{2}{M} (aC_f - bC_r) \frac{\psi}{v_x} - v_x \dot{\psi} + \frac{2C_f}{MG} \delta \\ \dot{\psi} &= -\frac{2}{J} (aC_f - bC_r) \frac{v_y}{v_x} - \frac{2}{J} (a^2 C_f + b^2 C_r) \frac{\psi}{v_x} + \frac{2aC_f}{IG} \delta \end{aligned} \right. \quad (4) " \end{aligned}$$

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Column 5 (cont'd),
and insert

$$\begin{cases} v_x = \frac{r}{M} + v_y \Psi \\ v_y = -\frac{2}{M} (C_f + C_r) \frac{\Psi}{v_x} - \frac{2}{J} (aC_f - bC_r) \frac{\Psi}{v_x} - v_x \Psi + \frac{2C_f}{MC} \delta \\ \Psi = -\frac{2}{J} (aC_f - bC_r) \frac{\Psi}{v_x} - \frac{2}{J} (a^2 C_f + b^2 C_r) \frac{\Psi}{v_x} + \frac{2aC_f}{JG} \delta \end{cases} \quad (4) \quad \dots$$

Column 6,
Lines 2-16, please delete

$$\hat{x} = \left(\frac{\partial H(\hat{x})}{\partial \hat{x}} \right)^{-1} M(\hat{x}) \text{sign}(V(t) - H(\hat{x})) + B\delta \quad (5) \quad \dots$$

where

$$\begin{aligned} H(x) &= [h_1(x) \ h_2(x) \ h_3(x)] \\ h_1(x) &= \Psi = r \\ h_2(x) &= \dot{r} \\ h_3(x) &= \ddot{r} \\ V(t) &= [v_1(t) \ v_2(t) \ v_3(t)] \\ v_i(t) &= r'(t) \\ v_{i+1} &= (m_i(\hat{x})) \text{sign}(x(v_i(t) - h_i(\hat{x}(t))))_{eq}, \quad i=1,2 \\ M(\hat{x}) &= \text{diag}(m_1(\hat{x}) \ m_2(\hat{x}) \ m_3(\hat{x})) \end{aligned}$$

and insert

$$\hat{x} = \left(\frac{\partial H(\hat{x})}{\partial \hat{x}} \right)^{-1} M(\hat{x}) \text{sign}(V(t) - H(\hat{x})) + B\delta \quad (5)$$

where

$$\begin{aligned} H(x) &= [h_1(x) \ h_2(x) \ h_3(x)] \\ h_1(x) &= \Psi = r \\ h_2(x) &= \dot{r} \\ h_3(x) &= \ddot{r} \\ V(t) &= [v_1(t) \ v_2(t) \ v_3(t)] \\ v_i(t) &= r'(t) \\ v_{i+1} &= (m_i(\hat{x})) \text{sign}(x(v_i(t) - h_i(\hat{x}(t))))_{eq}, \quad i=1,2 \\ M(\hat{x}) &= \text{diag}(m_1(\hat{x}) \ m_2(\hat{x}) \ m_3(\hat{x})) \end{aligned}$$

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Column 6 (cont'd),

Line 33, please delete " $R = [a_{1\omega} - \hat{a}_{y1} \delta - \hat{\delta} a_{1\omega} - \hat{a}_{y2} C_f - \hat{C}_f \hat{a}_{1\omega} - \hat{a}_{y3} C_r - \hat{C}_r]$ " (6)

and insert -- $R = [a_{1\omega} - \hat{a}_{y1} \delta - \hat{\delta} a_{1\omega} - \hat{a}_{y2} C_f - \hat{C}_f a_{1\omega} - \hat{a}_{y3} C_r - \hat{C}_r]$ (6) --.

Column 8,

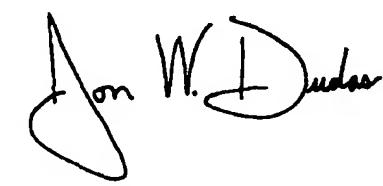
Line 42, please delete "said-residual," and insert -- said residual --.

Column 10,

Line 20, please delete "generator a" and insert -- generator, a --.

Signed and Sealed this

Thirtieth Day of August, 2005



JON W. DUDAS
Director of the United States Patent and Trademark Office